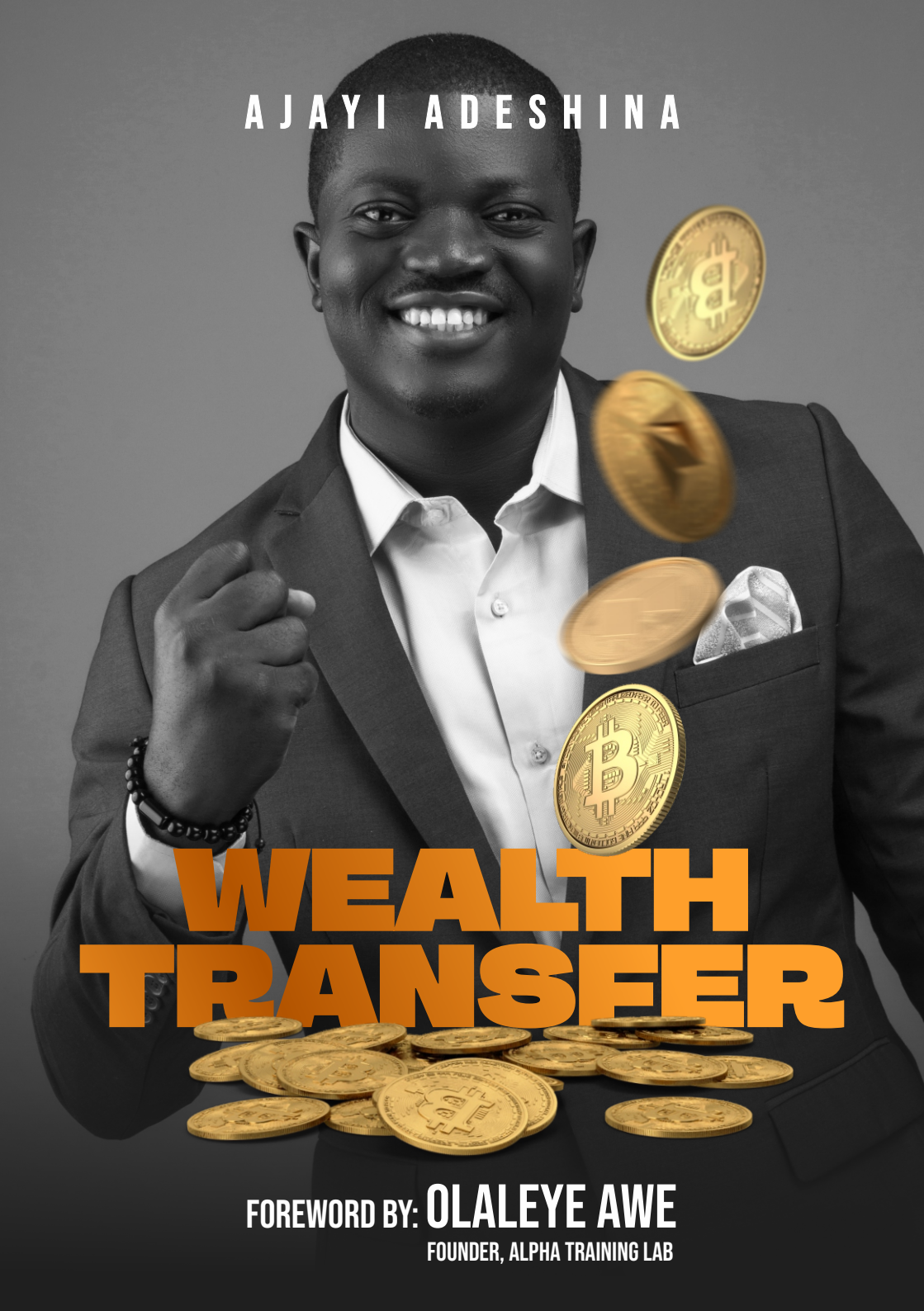
AJAYI ADESHINA



WEALTH TRANSFER

FOREWORD BY: OLALEYE AWE

FOUNDER, ALPHA TRAINING LAB

WEALTH TRANSFER

AJAYI ADESHINA

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US. 110 W Randol Mill, Arlington, TX. 76011

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TABLE OF CONTENTS

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I give glory to GOD Almighty for the gift of life, and the opportunity and inspiration to impact my world. All that I have, all that I am, is because of You, dear Lord, and I remain eternally filled with gratitude.

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A big thank you to Prof Awe Olaleye for choosing to mentor and guide me along the wealth path and accepting to write the book foreword.

Final thanks goes to you, my dear reader. All this writing is so you can be enriched

with value and information. Thank you, and enjoy.

FOREWORD

I am honored to be given the privilege to write the foreword to this wonderful book.

I have known the author for upward of a decade and I have to commend the quality of his writing and thinking process.

I had the honor of reading through the draft of this book and I can say for sure it is quality material for those wanting to understand the evolution of money and how the blockchain is changing our world and the concept of value exchange.

I have seen first hand how the blockchain is changing several industries and making them more efficient. This book gives an

insight into how this is happening in the world of finance.

I have been a great evangelist of the blockchain revolution and this book is one of the easiest to understand deep dive on the subject.

I urge everyone to get this book and read it with a mind to learn new things about the newest revolution sweeping our world today.

I am sure you will have more reasons to buy copies of this book for your friends and family.

OLALEYE AWE
Founder, Alpha Training Lab
Blockchain Enthusiasts

INTRODUCTION

We live in the digital era, where all of us are one step away from accessing information about anything in the internet world. The present world is all about high-speed technology and instant Google answers, and hence the millennials (1981 to 1986) like to have their investment information to be immediately accessible.

According to Accenture's Wealth in the Digital Age Investor survey, each and every generation has the capacity to influence the economy, however, millennials have a special impact as they are the most digitally savvy investor group overall.

Ashraf Rizvi, Chief Executive Officer (CEO and Founder, Gilded, said, “Millennials are driven by their ambitions and believe in leading a financially independent lifestyle. They have a holistic approach towards every aspect of life including wealth management, as compared to their parents who relied solely on financial advisors, traditional institutions and focused on saving and building a comfortable money-nest to retire, with limited exposure to risks.”

Millennials are digitally savvy investors and are willing to take risks and explore new-age approaches to investment opportunities. They value speed and

superior experience while utilising a service or product.

With the increasing internet and smartphone penetration, every task can be completed at the click of a button, even when it comes to managing finances. The large-scale adoption of new and innovative wealth-tech offerings in the country, for whom a significant number of users are millennials, is a sign of their willingness to experiment, take calculated risks, and take charge of their own finances."

Hitherto, great wealth had been transferred dominantly by means of inheritance. Certain individuals amass great stores of wealth, maintain it for the rest of their lifetime, then

will it to their descendants at death, leaving them to either continue to grow it—or squander it through mismanagement and the reckless living that is common among the children of the rich.

While some millennials have made a name for themselves, this generation came into the workforce in the aftermath of the great recession—and poorly equipped to handle it, too. Consequently, a great number of them endure much financial struggle, and see the next great wealth transfer as their salvation.

What many do not yet realize is that they're not getting it all for themselves.

The Generation Z (those born between 1997 and 2010) however met the world in a rapid state of technological advancement. The iPhone was launched when the oldest of them were just 10years, and digitization is as much a part of their lives as electricity was for their parents.

The implications of this are magnanimous in their proportions, among them which are:

- Thanks to the rapid growth of the internet, they have access to—and can digest—three times as much information as, and even much more than, the previous generation .

- Education and learning has become more diverse and easily accessible now than ever before, sidelining the disease of illiteracy to only those who choose to remain ignorant.

- The digital market is catching up to—and already fast outpacing—the physical markets, creating opportunities to do business like never before. The youngest Millennials and oldest Gen Z'ers make more money through their phones and laptops in one year than the previous generations could ever dream of making in a lifetime. Not only that; a

major percent of them achieve this feat in the comfort of their homes.

The Gen Z is grown enough and bracing up for a bite in the next wealth transfer—and they're not kidding.

CHAPTER 1

THE EVOLUTION OF MONEY

Money indeed makes the world go round. It has always inexplicably been part of our daily lives, from earning it via jobs and investments to spending it for products, services, and experiences. It is a necessity no matter the currency and has always been a symbol of barter and exchange.

Money has been around long enough for it to advance with everything else in this modern era. Technology has given birth to cashless transactions and even brought forth the concept of digital currency and

cryptocurrency, which still encapsulates the essence of money.

The concept of digital currency went viral when the world was introduced to bitcoin in 2009. It is essentially a digital currency that operates independently from a bank, allowing unchangeable consensus mechanisms to regulate it instead.

To better understand digital currency and its benefits, it is worth looking into a comprehensive history of money.

What is Money?

Money is what people use to pay for goods and services. Money has evolved from fiat

to digital currencies over the past few years. But before both fiat and digital currency, money was simply barter; two people would agree to exchange their goods and services in amounts that they believed had equal value.

How Money Works

For a method of payment to be considered "money," it has to have three core functions. it has to be a:

- **Medium of Exchange** – meaning an item you can use to trade or acquire something else. In this regard, both

parties should agree that the money has value.

- **Store of Value** – Money has to hold its value for a definitive period of time, which is what makes it possible for it to be a medium of exchange. This means that you must be able to store it and use it at a later time, in other words, it holds its value over time. This is much different than bartered or traded goods, which may have an expiration date or might depreciate in value.

- **Unit of account** – Money must serve as a way to price or measure goods and services that people want to buy.

It becomes a baseline for buying different items, with some costing more than others.

Money has come a long way from when people used to barter. Below is a more detailed overview of how money evolved over the years.

1. Barter

Bartering was the common practice of acquiring goods and services about 3,000 years before coins appeared. Barter involved a lot of negotiation, haggling, and altering deal terms before two parties could agree that they would receive the same value for exchanged goods and services.

However, a barter could take a significant amount of time. Sometimes, a seller would consider services as a fair trade for their product instead of another product. Let's say you are selling a rare item. What you consider fair trade for this item might be the buyer performing a task that requires weeks to accomplish.

Eventually, people settled on items that could be easily traded like animal skins, salt, and weapons to make the process faster. These items are often recognized as the first type of currency.

2. Coins

Because trading goods are not always easy to carry around, evolution happened. China

and Europe were the world's pioneers in creating objects similar to modern-day money to make it easier to purchase goods and services.

The first region to use an industrial facility to manufacture coins was in Europe. This facility is known to this day as a mint. The minted coins were made from a naturally occurring mixture of silver and gold called electrum and were stamped with pictures that served as denominations.

3. Paper Currency

In the coming years, banks started to emerge and became the primary institution that stored metal coins. Banks also issued paper money for borrowers to carry around.

At any time, a person could go to the bank to have their paper currency exchanged for its face value in metal coins.

This made it easier for people to pay for goods and services in large quantities and added an extra layer of security and convenience for people.

4. Mobile Payments

If there seems to be a common trend in the evolution of money, it's that it usually becomes more portable, accessible, and convenient to handle.

Nowadays, banks have official apps that allow you to make local and international

interbank transfers, globalizing the reach of money.

5. Digital Currency

With mobile wallets on the scene, it was not going to be long before a completely digital currency would emerge. In 2009, the financial world was taken aback with the introduction of Bitcoin, the first digital currency. It revolved around the fact that it could operate with a decentralized authority, moving away from banks and fiat currency.

In the coming years, many more virtual currencies emerged, such as Ethereum (ETH), Ripple (XRP), Tether (USDT), and

Litecoin (LTC), each with their own substantial share in the market.

The Rise of Digital Currency

Digital currency made a significant impact on the world because of its unique features. First off, it only exists electronically and does not need a bank or authority to regulate it. Instead, it turns to technology and encryption.

The emergence of Bitcoin has long sparked a debate among economists about whether or not it's here to stay. As of today, it plays a role as a new medium of exchange, as it offers things traditional money cannot:

- Peer-to-peer transactions without the need for a middleman or governing authority, such as banks or governments
- Confidential transactions that maintain the privacy of senders
- Easier international trade with lower service fees
- 24/7 access to funds
- Real-time transfers to all accounts
- Increasing adaptability with the emerging new digital currencies and wallets that can handle transactions with them

- More and more establishments are recognizing the value of digital currencies and accept them as a payment method.

- Reliable encryption techniques allow for safe transactions and fewer instances of theft.

And this is only scratching the surface. There is no telling what digital currencies will evolve to be, and right now, it is exciting to study and follow the trends in digital money.

The Future of Money

Money will always be here to stay, and it will continue to evolve and adapt to human needs. It’s exciting to see what the future holds next for digital currencies.

In "What the History of Money Says About Its Future", an article by TIME.com, great insight is offered concerning the future of money by looking at it's history:

"When Franklin Roosevelt told his economic advisers he was about to take the U.S. off the gold standard, they freaked out. The President was leading the country into “uncontrolled inflation and complete chaos,” one of them said. Another said it was “the end of Western civilization.”

Roosevelt's aides weren't wild-eyed reactionaries; their view was conventional wisdom.

"The gold standard, almost everybody agreed, was the natural way to do money. Under its rules, anybody who wanted to could trade in paper money for a fixed amount of gold. In the U.S., $20.67 got you an ounce of gold, year in and year out. That unchanging value was the whole point of the gold standard. Take away the gold, and money would obviously be just worthless paper.

"This worldview turned out to be completely wrong. Clinging to the gold standard was part of what created the Great Depression

in the first place. Leaving it in 1933 was an essential step toward economic recovery. So why were Roosevelt's advisers, and most of the leading economists of the day, blinded by their devotion to gold?

"There's this thinking error we almost always make with money. The way money works at any given moment feels like part of the natural order, as with water or gravity. Any alternative to the way money works seems like some absurd game. Paper money not backed by anything? That's like expecting water to flow uphill!

"Then some political or technological or financial shock comes along, and suddenly there's something new: paper money

backed by metal, or paper money backed by nothing, or simply numbers on a screen. Pretty soon, we get used to the new money. It comes to seem like the natural state of things, and anything else is foolishness.

"We may be on the cusp of one of those shifts now. It's impossible to say for sure how things will play out, but history provides some deep insights into what should make us hopeful about the future of money—and what should scare us.

Money Is Technology

"Around A.D. 100, a Chinese court official ground up a mash of mulberry bark, rags and fishnets, and invented paper. A few centuries later, someone—maybe a

Buddhist monk who was tired of writing the same sacred text again and again—carved a sacred text into a block of wood and invented printing.

"A few centuries after that, a merchant in the capital of Sichuan set out to solve another problem: the money his customers were using was terrible. It was mostly iron coins, and it took a pound and a half of iron to buy a pound of salt. It would be the modern equivalent of going grocery shopping with nothing but pennies.

"So the merchant told his customers that they could leave their coins with him. In exchange, he gave them a claim check—a piece of paper that could be used to

retrieve the coins. People started using the claim checks themselves to buy stuff, and paper money was born. It was a huge hit.

"Pretty soon, the government took over the business of printing paper money, and it spread throughout China. In an era when there was no mechanized transport, the ability to move value around on a few pieces of paper—rather than a wagon full of metal coins—was a breakthrough.

"Paper money relied on paper and printing, which were a kind of technology. But paper money itself also was a new technology—a tool that made trade easier. This led to an increased exchange of ideas and more economic specialization, which in turn

meant people could grow more food and make more stuff. Paper money helped China get richer. At the same time, that new technology came with risks—it meant rulers could print lots of money, which sometimes led to ruinous inflation.

"Today, new technologies allow us to move money using the supercomputers in our pockets. In the coming years, technology will drive even more dramatic changes in money, as the full impact of crypto-currencies becomes clear. Like paper money, these new technologies will continue to bring new opportunities, efficiencies and risks.

Money is both public and private

"One key dynamic to watch as digital currency evolves is the tension between the government and private firms, a theme that runs like a golden thread through the history of money.

"Consider the case of America in the mid–19th century, when almost any bank could print its own paper money. The $2 bill from Stonington Bank in Connecticut had a whale on the front; the $5 bill from the St. Nicholas Bank of New York City had a picture of Santa Claus. At one point, private banks were printing more than 8,000 different kinds of money.

"This was still the era when paper money was a claim check for gold or silver. If a bank went bust, the valuable claim check was suddenly just a piece of paper with a picture of Santa Claus on it.

"This presented a problem for merchants who faced customers using thousands of kinds of money. How could they know which banks were sound? For that matter, how could they tell real money from counterfeit? Publications called banknote reporters sprang up to solve both problems. They were little magazines that listed bills from all around the country, with brief physical descriptions and recommendations for whether to accept the money at

full value or, in the case of shaky banks, at a discount.

"That world disappeared around the time of the Civil War, when a new federal tax on paper money drove most of the old banknotes out of existence. But even as the variety of paper money declined, money created by private banks persisted.

"Even today, banks create new money out of thin air every time they make a loan. This money, stored as balances in checking and savings accounts, is not so different from the paper money banks used to print. Well into the 20th century, depositors in the U.S. could lose their money when a bank went

bust—just like their ancestors who were left holding worthless pieces of paper.

"It was only in the 1930s, when the federal government started insuring most bank deposits, that this risk disappeared. In other words, modern banks create money that is in turn guaranteed by the federal government. Is this money public or private? It is both!

"The original dream of cryptocurrency was purely private money—a currency that needed neither governments nor banks. And although this remains a technical possibility, it's striking that more than a decade after Bitcoin was invented, almost no one uses crypto-currency in the ordinary

way people use money—to buy stuff in everyday life. If crypto-currency does become ordinary money, it probably won't be as some purely private libertarian money, but as the kind of public-private hybrid that money has almost always been. In fact, regulators have started to crack down on so-called stablecoins, a type of crypto-currency designed to substitute for our existing money.

Stable money is risky money.

"What should we worry about when we worry about the future of money? Sure, there are plenty of new cryptocurrencies whose values fluctuate wildly from week to week. But if we're worried about broader

risks—to the economy, rather than just to speculators—maybe we should focus on stablecoins. Rather than promising overnight wealth, many stablecoins offer stability with the claim that each virtual coin will be worth exactly $1 today, tomorrow and forever. As more and more people trade a growing number of crypto-currencies, stablecoins such as Tether and USD Coin have exploded in popularity. And in the history of money, we often find the promise of boring stability is ultimately more risky than the promise of quick riches.

"Money-market mutual funds are a telling example. They were invented in the 1970s, and the idea was to offer something that

seemed like a bank account but paid higher interest. As Bruce Bent, the inventor of the money-market fund, said again and again, “The purpose of the money fund is to bore the investor into a sound night’s sleep.” Even the name is dull.

"Money-market funds worked like banks. Investors put money in. The fund then lent that money out, collected interest and paid some of the interest back to the investors. People and companies put trillions of dollars into money-market funds for safekeeping, and it seemed a lot like money in the bank—put a dollar in, take a dollar out, plus interest. But, unlike bank deposits,

money-market fund investments were not guaranteed by the federal government.

"In September 2008, the investment bank Lehman Brothers went bankrupt. As it happened, a large money-market mutual fund had lent $785 million to Lehman Brothers—and the bankruptcy meant that the fund might not get that money back. Investors in the money-market fund started demanding their money back. But the fund couldn't deliver. In the parlance of money-market mutual funds, it "broke the buck"—investors could no longer take out a dollar for every dollar they put in.

"The moment an asset that seemed safe suddenly seems risky can be profoundly

destabilizing. Overnight, investors started trying to pull hundreds of billions of dollars out of money-market mutual funds. It was like a bank run, and as often happens in a run, the money-market funds weren't going to be able to come up with all the money. Within a few days, as part of an effort to prevent a broader economic collapse, the federal government stepped in.

"The most popular stablecoins work a lot like these funds. When people buy stablecoins, some of the companies that run stablecoins turn around and invest that money. When people want to redeem their stablecoins for dollars, the creators of the coins have to sell off those investments. If the investments lose a lot of money, or if

everyone suddenly wants to redeem their stablecoins at once, stablecoins might prove unstable—investors might suddenly be unable to get a dollar out for every dollar they put in.

"Regulators know this. And over the past few months, some of the most powerful economic officials in the country have suggested that stablecoins may soon come in for stricter regulation.

"The rise of stablecoins, and the government's response, is the history of money and the future of money playing out in the present: a new monetary technology that brings new benefits, new risks and new fights between public and private interests."

CHAPTER SUMMARY

Money is what people use to pay for goods and services. Money's history goes this:

1. Barter, which involved a lot of negotiation, haggling, and altering deal terms before two parties could agree that they would receive the same value for exchanged goods and services.

2. Coins, which were first introduced in China and Europe. They replaced the use of items too difficult or dangerous to carry around.

3. Paper money came not long after, and made it easier for people to pay for goods and services in large quantities and added

an extra layer of security and convenience for people.

4. Mobile payments: Nowadays, banks have official apps that allow you to make local and international interbank transfers, globalizing the reach of money.

5. Digital currency made a significant impact on the world because of its unique features.

CITATIONS

Goldstein, J. (2021, October 15). *What the History of Money Says About Its Future.* TIME https://time.com/6106675/money-history-future/

CHAPTER 2

CRYPTOCURRENCY: BRIDGING THE WEALTH GAP

The World Bank describes that “the number of poor worldwide remains unacceptably high, and it is increasingly clear that the benefits of economic growth have been shared unevenly across regions and countries.”

Along with the incidents of economic chaos, civil war and governmental collapse plague developing regions. Besides, poverty is mainly driven by economic factors which include limited access to financial services and high inflation rates.

Moreover, studies have argued that a low level of trust and corrupt government institutions harm economic development.

Crypto currencies could provide a significant benefit by overcoming the lack of social trust and increasing the access to financial services (Nakamoto, 2008) as they can be considered as a medium to support the growth process in developing countries by increasing financial inclusion, providing a better traceability of funds and to help people to escape poverty.

The cryptocurrency revolution is taking place right before our eyes. Some have even called it the greatest transfer of wealth the world has ever seen. While this

fact has yet to be seen, the foundation for it has been laid.

As the price of bitcoin increases, this number is only expected to increase as well. The significance of the establishment of cryptocurrency can never be overstated. Cryptocurrency is a global phenomenon, and where previous great wealth transfers have typically been confined to a particular demographic, or geographic region, the global nature of cryptocurrency means the whole world can watch as the next great transfer of wealth unfolds.

A growing number of young people are turning to cryptocurrency as a means of growing and securing wealth. Young people

are in a better life position to take greater risks than their elders. Bitcoin as a retirement plan doesn't sound too bad if your retirement is 30+ years away.

The financial and political values offered by cryptocurrencies such as bitcoin resonate much more deeply with the younger generation. So don't be surprised if a swath of young people turns their inheritance into cryptocurrency.

Cryptocurrency represents a shift in beliefs, values, and power. This is playing out in a variety of ways on the world stage. Whether that is protests, mass organization on social media platforms, or the prolific rise of

cryptocurrency. We have seen many of these movements play out over the last several months—and in some cases a year or more.

Cryptocurrency is unique because its existence itself is a protest against the current financial paradigm. It is the longest running peaceful protest against an establishment that has held sway for generations. Other protests die out because they lack organization, or leadership, or a common goal.

Cryptocurrency has been working for a decade now, because it actually works. For the first time in history, people have the ability to voluntarily transfer their wealth into

a system that actually serves them. By design, cryptocurrency is coordinated, organized, and aimed at accomplishing a goal: Wealth Transfer, and Financial Revolution.

Global wealth inequality is increasing. Meanwhile, government-backed currencies, where most of the poor save their money, are devaluing each year. Poor people lack access to banking, and they can't get credit.

This is at its most extreme in economies in crisis, but is true all over the world. Using Bitcoin can mitigate these problems and

level the playing field for the world's poor as we work toward economic justice.

"Between 2016 and 2019, the inflation rate of the Venezuelan bolivar was 54,000,000%. Of course, no Venezuelan wants to hold bolivars, because they are worth less each day.

"For those who do have bolivars in their bank account, banks have strict withdrawal limits. Families use upwards of ten debit cards from different accounts and different banks just to buy groceries. Given the government's stranglehold on finances, the average person cannot easily acquire other assets. And their bolivars are also often confiscated by police or the military.

"This situation is not unique to Venezuela. Many countries' government-sponsored currencies are rapidly devaluing, including Turkey, Nigeria, Lebanon, Zimbabwe, Argentina, Iran, and South Sudan. The privileged wealthy in those countries have no problem weathering the storm. They've abandoned the ship of local currency for the lifeboats of foreign equities and foreign currency.

"The poor, by contrast, have no such luxury. They are paid in local currency, pay others in local currency, and save what they can in local currency. They lack the opportunities of the wealthy. Their ships are sinking, and they have no lifeboats.

"The advent of cryptocurrency is quite the ship coming to the rescue. Using Bitcoin can level the playing field for the world's poor as we work toward economic justice.

"As their currencies devalue, the poor's share of the country's wealth decreases because they lack access to safer investments. Making matters worse, many countries have no banking system. For example, 76% of Kenyans don't have a bank account; they make do instead with the M-Pesa payments network via mobile phones.

"This works well as a medium of exchange, but not for storing value. Should the Kenyan Shilling devalue (beyond its current rate of

5% per year), their options are limited. The wealth gap increases.

"This phenomenon isn't unique to countries with rapidly devaluing currencies – it's just more noticeable. Almost every government-backed currency is designed to devalue over time. The wealthy store very little of their wealth in cash or cash accounts. The rest of us aren't so lucky. When we want to save, we save in fiat. And that is a losing play.

"It is very hard to stash away just a few hundred dollars in real estate; most of us don't have a way to buy fractions of houses. One might think that apps like CashApp and Robinhood are helping

people who are only able to invest miniscule amounts in the stock market.

"This is a sorely needed service, but it's not without concern. First, both sell their order flow to Wall Street, allowing Wall Street to use that information to front run retail investors. Second, they both use slow, centralized clearinghouses, which can prevent retail investors from making purchases they want to make (like buying stock in GameStop).

"The wealthy also easily take on low-interest debt in a currency that gets easier to pay back over time and use it to buy assets that hold or increase their value. The poor cannot; they have less access to

low-interest debt and so pay off debts less easily. Almost every country's currency is designed to devalue over time. This is a debt-forgiveness program for the global rich – rich individuals, as well as rich countries.

"A cryptocurrency like Bitcoin can help. Whereas governments can issue their currencies at will (for example, the US government printed $9 trillion in 2020 -- 22% of all the USD ever minted), this is not possible with Bitcoin. The rules embedded in Bitcoin's software dictate that it's supply schedule will unfold predictably until there are 21 million BTC by 2140; the supply is capped at 21 million.

Areas Where Bitcoin Can Help Close The Wealth Gap

Credit

Credit is a tool to build wealth. People who can borrow to, for example, buy homes or start companies, can then pay back the debt slowly as the currency devalues. But those who need it most get it the least. US history has shown that credit is not extended equitably.

"The clearest example is redlining, where the federal government color-coded neighborhoods in terms of willingness to loan at various interest rates, and for those color-coded red, the Federal Housing Administration refused to insure mortgage

loans to people living in those neighborhoods; these were primarily lower-income black people living in urban areas.

"This locked lower-income black families out of home-ownership, which is the primary vehicle for rising to the middle class. Redlining was banned in 1968, but its effects are still seen today. Black families own 1% of the wealth in America today; they owned 0.5% in 1863 when the Emancipation Proclamation was signed. White families today have nearly 10 times the net worth of black families and more than eight times that of Hispanic families.

"Being shut out of the credit market is economically devastating, and so people seek credit elsewhere. Each year 12 million Americans (6% of American adults) take out a payday loan, making it a multibillion dollar industry. The average loan is $375, and the average loanee pays $520 in interest.

Banking

Over 7 million US households were unbanked as of 2019. Unbanked people pay to cash their paychecks, to get money orders to pay rent and utilities, to get prepaid debit cards, and so on. The average unbanked family pays $2400 a year on financial transactions like these alone, a whopping 10% of their annual income. The

unbanked pay approximately $89 billion per year in total transaction fees.

"Bitcoin mitigates both the banking and borrowing problems in the US. In relation to banking, it's important to note that the unbanked still have income – but it comes in the form of checks that cost money to cash. Bitcoin costs nothing to receive, and about $10 to send.

"And with protocols like Lightning that run on top of the Bitcoin network, the cost per transaction is pennies. If unbanked people were paid in Bitcoin and could pay bills in Bitcoin, the cost of their financial transactions would be miniscule. And they

can easily and cheaply convert some of their Bitcoin to USD if they so desire.

Storage of Value

There are systemic factors that make it difficult for people who aren't already wealthy to store value. Regulators tend to think that, for people's own good, they shouldn't be allowed to make risky investments. (Except the lottery, apparently.)

"So the rich get richer because of their access to stable stores of value like hedge funds, venture capital investments, and so on, and the poor do not. Holding Bitcoin at

least keeps their money safe in a currency that won’t devalue due to increased supply.

"One might think that holding cash in a savings or checking account isn’t risky. First, not everyone can open a savings account; Bitcoin is more inclusive. Second, savings accounts aren't risky in this sense -- your money will be there when you need it.

"But they are risky in another sense -- your savings will be less valuable when you take it out. $100 in 1950 is worth $1080 today; by holding USD for 60 years, it loses $1000 in value. Bitcoin, by contrast, has gained value every year of its existence (save one), and it has gotten less volatile every year.

And of course, one needn’t save only in Bitcoin."(iai.tv, 2021)

BRIDGING THE WEALTH GAP—CASE STUDIES

That cryptocurrency is a bridge that connects all who recognize it to wealth has ceased to be a mere speculation, as more people record an exponential increase in their finance by reason of investing in the value it offers.

There are many case studies out there to prove this, and we will now look at two of them.

1. The Winklevoss Twins

Many years ago, two young and bright minds saw an opportunity where only a few were looking at the time: Digital currency. Their decision to invest paid off exponentially (literally turning them into billionaires) for them and brought them from limelight to spotlight. The following article penned by Emma Newberry informs us thoroughly of this and leaves us with enough wisdom to chew on.

"Here's how two brothers became Bitcoin billionaires.

"Tyler and Cameron Winklevoss, better known as the Winklevoss twins, have several claims to fame. You may have heard

of their dispute with Mark Zuckerberg over the creation of Facebook -- especially if you've watched The Social Dilemma. If you're a sports buff, you might know they took sixth place in the men's pairs rowing event at the 2008 Beijing Olympics.

"But more than that, the Winklevoss twins are crypto pioneers and Bitcoin billionaires. Their journey can offer up valuable lessons on how to safely invest in cryptocurrency for the long term.Keep reading to learn more about how their investments unfolded.

The Winklevoss twins' Bitcoin journey

Facebook settlement (2008): The twins reach a settlement with Zuckerberg for $65 million in a mix of Facebook shares and cash. They claimed he copied their idea and some of the code they'd paid him to create.

Winklevoss Capital (2012): The duo founded a company that provides angel investments to early-stage companies and entrepreneurs. It has invested in almost 100 projects and currently has 20 crypto-focused investments in its portfolio.

Bitcoin investment (2012 and 2013): In April 2013, the brothers announced they own approximately $11 million in Bitcoin

through Winklevoss Capital. Some reports suggest they bought some of their Bitcoin for as little as $10 per coin. At that point, the duo was rumored to own 1% of all the Bitcoin in circulation. Shortly after that announcement, Bitcoin's price fell from $180 to $80 in a week -- the first of many dips on the crypto rollercoaster.

BitInstant (2013): The Harvard graduates announced their involvement in BitInstant, one of the first American Bitcoin exchanges. Unfortunately, Charlie Shrem, the former CEO, was later arrested and sentenced to two years in prison for operating an unlicensed money business. Prosecutors said he knowingly traded Bitcoin that had been used for illegal drug

transactions and money laundering. BitInstant shut down later that year. The brothers would later sue Shrem in 2018, claiming Shrem stole Bitcoin from them. An undisclosed settlement was reached in 2019.

Foundation of Gemini (2014): Since the pair founded the cryptocurrency exchange Gemini, it has built a reputation as one of the safest places to buy, sell, and store cryptocurrency. It was one of the first to be licensed by the New York State Department of Financial Services (NYSDFS). This is significant because New York has some of the strictest crypto regulations in the U.S.

and only a handful of platforms can operate there.

Bitcoin surge (2017): In December, the price of Bitcoin peaked at over $18,000. Its value has risen and fallen since then, but the Winklevoss twins did not sell.

BlockFi investment (2019): Winklevoss Capital invested in BlockFi, one of the first crypto lenders in the U.S. Now it is a crypto exchange that also pays decent savings rates.

Nifty Gateway (2019): Gemini bought Nifty Gateway, a platform for non-fungible tokens (NFTs) -- or Nifties as the company calls them. NFTs are unique digital collectibles, often art or music, which allow artists to

profit from digital artwork. NFTs are another aspect of the blockchain world that has boomed in recent years.

Crypto credit cards (2021): Both BlockFi and Gemini have opened up waiting lists for crypto credit cards set to launch this year, showing the brothers are again at the forefront of the industry. These crypto credit cards will allow you to earn rewards in Bitcoin and other digital currencies, as well as giving potential trading discounts.

Bitcoin surge (2021): This has been the year Bitcoin reached extraordinary highs. It started the year valued at around $30,000. By March, it had risen to over $60,000. The exact details of what the brothers own are

unclear, although we know they haven't sold much of their original investment. Forbes estimates they currently own 70,000 Bitcoins as well as other digital assets.

What lessons can we learn from the Winklevoss twins?

"The twins embraced the digital economy early and have made it clear they think Bitcoin is better than gold. From lawsuits to holding tight, here's what we can learn from the Winklevoss story -- even if we don't have $11 million to invest in digital currencies tomorrow.

"Invest for the long term. The Winklevoss twins have held on to their Bitcoin through the highs and lows. According to media

reports, the only time they sold any Bitcoin was to set up Gemini. They researched digital currencies and believe in the transformative power of this technology. And they think this is only the beginning for Bitcoin. A good takeaway from this is to invest in cryptocurrencies, stocks, or funds that you believe will perform well in the long run. That way, you won't be as impacted if your assets fluctuate in the short term.

"Choose a reputable crypto exchange. The twins' first taste of crypto was with a man who later turned out to be a criminal and stole some of their coins. You can avoid that mistake. These days, there are several

reputable cryptocurrency exchanges where you can buy Bitcoin safely and cheaply.

"Live below your means. Even when the first Bitcoin peak took their assets to over a billion, the brothers didn't rush out to buy flashy cars. In fact, in 2018, only one of the brothers owned a car at all, and it was bought secondhand. Sure, Bitcoin has made some people into millionaires overnight. But there's a more dependable way to build wealth: Don't spend every cent you earn, and invest money when you can. Putting money aside every month will help you to have a nest egg ready when you retire. You might even be able to retire early.

"We're in the midst of a Bitcoin gold rush, and it's easy to get caught up in the frenzy. But it's important to remember that cryptocurrency investments are highly volatile. And it's never a good idea to invest money you can't afford to lose. The Winklevoss twins show us how important it is to think long term. That way you avoid panic selling if your investments lose value, or panic buying for fear you might miss the boat." (The Ascent, 2021)

2. ERIC FINMAN

Teenage bitcoin millionaire Erik Finman, 19, has advice for young people looking to invest in the cryptocurrency: "Find what

you're good at, and find a way to make money doing it."

"This is crucial for young people," he writes on Twitter. "Establishing an extra stream of income will allow you to start investing earlier."

Finman currently owns 401 bitcoins, which he confirmed with CNBC Make It, or over $4.4 million at the rate of $11,182 a coin. The teenager began investing in bitcoin in May 2011, after receiving a $1,000 gift from his grandmother at age 12.

Finman tells Forbes that his knack for politics is actually what got him interested in bitcoin initially. "[I] saw this as an incredible way to transcend the financial

system including Wall Street," he tells the magazine.

Other bitcoin millionaires have also warned against sinking money into bitcoin, noting that it's not secure and has no real value. But Finman refutes that claim.

On his Twitter, he writes that people often say, "Bitcoin isn't real, it's just numbers on a computer screen!"

The millionaire argues that the dollars in your bank account are also just numbers on a screen. "Bitcoin is just as real as fiat money, except Bitcoin can't be printed endlessly," he writes.

The teenager remains optimistic about bitcoin's prospects and advises other young people to take part in the crypto-craze. "What I love about Bitcoin is that instead of some rich old guy on Wall Street, young poor people are the ones getting rich," he writes on Twitter.

In fact, the 19-year-old believes that investing in cryptocurrency is one of the fastest ways for young people to attain wealth.

"Cryptocurrency represents the largest transfer of wealth our generation has ever seen," he writes. "Never before have young people been able to change economic classes so quickly." He's proof of that.

Finman had a 2.1 GPA in high school and says his teachers considered him a failure.

"One teacher told me to drop out and work at McDonald's because that was all I would amount to for the rest of my life," says the teen. So he dropped out.

He also made a bet with his Stanford-educated parents that if he became a millionaire by 18, he wouldn't have to go to college. Investing in bitcoin helped him avoid that fate.

After selling his first bitcoin investments in 2013, Finman walked away with $100,000. At the time, each bitcoin was valued at $1,200.

With the money he earned, Finman launched an online education company in 2014 called Botangle, which he later sold for 300 bitcoins. Since then, he has been working with NASA to launch a rocket through the ELaNa project and managing his family's bitcoin investments.

He's also made personal smaller investments in other cryptocurrencies, including litecoin and ethereum.

The bitcoin millionaire says he strongly believes that this is just the beginning of cryptocurrency.

"Deep down, everybody knows cryptocurrencies are the future. Even the bankers and Wall Street know it," he writes

on his Twitter. "The only debate is how long until it completely takes over."

One of the things likely to come to your mind is "he's just a lucky bloke, I mean, his grandma gave him a thousand bucks—his *grandma.* Who gets a thousand bucks from grandma?"

But before you settle with that thought, first consider this: How many times have you been opportuned to receive a gift you were not expecting—and what did you do with it?

How much have you been preparing for opportunities?

How observant, how *consciously* have you been watching our for opportunities?

How much have you maximized the little resources available to you? You may complain that you don't have enough—but what have you done with what you *do* have?

This young man's story clearly shows that he has always been at work, getting ready for any opportunity he got. And when he received that gift from his grandma, he did not think of buying an iPhone or pimping up his bedroom.

No matter where you are or how low things are, there is always something good that you can focus on, that you can build, that

you can leverage. Start doing that now, and never ever stop.

CHAPTER SUMMARY

- Cryptocurrency has presented a level playing field to everyone and bridged the gap between the rich and the poor.
- You can amass great wealth by investing in cryptocurrency. You simply need an open mind and a willingness to learn. The case studies of Winklevoss twins and Eric Finmann are more than enough proof of this.

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CHAPTER 3

UNDERSTANDING CRYPTOCURRENCY

Cryptocurrency is a form of payment that can be exchanged online for goods and services. Many companies have issued their own currencies, often called tokens, and these can be traded specifically for the goods or services that the company provides.

Think of them as you would arcade tokens or casino chips. You'll need to exchange real currency for the cryptocurrency to access the goods or services.

Cryptocurrencies work using a technology called blockchain. Blockchain is a decentralized technology spread across many computers that manage and record transactions. Part of the appeal of this technology is its security.

To really understand cryptocurrency, an understanding is first needed of what blockchain is. I've done justice to this in my book, *Pathway To Blockchain.*

ADVANTAGES OF CRYPTO OVER FIAT

There are several benefits of bitcoin over the fiat currency that most people are not aware of. Therefore let's get through the

details one after the other to get a better insight into it.

• Low storage and transfer cost

Compared to traditional banking services, bitcoin has no storage cost. In the case of the transfer of money, bitcoin is better than fiat money. With the increase in the price of the bitcoin, the transfer amount will also increase with it. But it will still be cheaper compared to Fiat currency.

• Worldwide Global Access

The cross border transaction with uniform value is not possible in the case of fiat money. But in the case of bitcoin, it is possible. The fiat money is limited to the

borders of their respective countries. Bitcoin allows the movement of the currency without any restrictions. But in the case of fiat currency, this is not possible.

Bitcoin is a decentralized currency with zero government regulation; hence you can use it from any part of the world without maintaining any strict restrictions or regulations. More flexibility a user can enjoy in the case of bitcoin compared to fiat money.

• Zero government interference:

Bitcoin cannot be controlled by any central authority of any country. The government cannot make any regulation on the purchase and the sale of bitcoins. Any user

of the bitcoins is free to purchase, sell, and store the bitcoin as per their wish. Hence you can enjoy more flexibility in transactions if you have bitcoin. You can use bitcoin as per your requirement whenever you wish. Barriers are less in the case of bitcoin compared to fiat currency.

- **Impossibility to falsify:**

Fraudsters cannot make fake bitcoin. The reason is it is a digital currency, not the paper currency like fiat money. Bitcoin is powered by blockchain technology, and the details of each and every transaction are recorded in it. You cannot bypass it anyway.

Anything you purchase will be immediately recorded in the blockchain technology. This is the reason why blockchain is also known as the digital ledger of all the transactions that are conducted using bitcoin. The record of every transaction is accurate, and you cannot manipulate it if you wish.

What drives crypto popularity?

Cryptocurrencies appeal to their supporters for a variety of reasons. Here are some of the most popular:

- Supporters see cryptocurrencies such as Bitcoin as the currency of the future and are racing to buy them

now, presumably before they become more valuable.

- Some supporters like the fact that cryptocurrency removes central banks from managing the money supply, since over time these banks tend to reduce the value of money via inflation.

- Other supporters like the technology behind cryptocurrencies, the blockchain, because it's a decentralized processing and recording system and can be more secure than traditional payment systems.

- Some speculators like cryptocurrencies because they're going up in value and have no interest in the currencies' long-term acceptance as a way to move money

Are cryptocurrencies good investments?

Cryptocurrencies may go up in value, but many investors see them as mere speculations, not real investments. The reason? Just like real currencies, cryptocurrencies generate no cash flow, so for you to profit, someone has to pay more for the currency than you did.

That’s what’s called “the greater fool” theory of investment. Contrast that to a well-managed business, which increases its value over time by growing the profitability and cash flow of the operation.

Some notable voices in the investment community have advised would-be investors to steer clear of them. Of particular note, legendary investor Warren Buffett compared Bitcoin to paper checks: “It's a very effective way of transmitting money and you can do it anonymously and all that. A check is a way of transmitting money too. Are checks worth a whole lot of money? Just because they can transmit money?"

For those who see cryptocurrencies such as Bitcoin as the currency of the future, it should be noted that a currency needs stability so that merchants and consumers can determine what a fair price is for goods.

Bitcoin and other cryptocurrencies have been anything but stable through much of their history. For example, while Bitcoin traded at close to $20,000 in December 2017, its value then dropped to as low as about $3,200 a year later. By December 2020, it was trading at record levels again.

This price volatility creates a conundrum. If bitcoins might be worth a lot more in the future, people are less likely to spend and

circulate them today, making them less viable as a currency. Why spend a bitcoin when it could be worth three times the value next year?

Nevertheless, cryptocurrencies have continued to fight hard and prove critics wrong over the years.

Many crypto critics have come to accept it as a part of us now and only time will tell what will become of cryptocurrencies in our world.

In the last 10 years, cryptocurrency has been the biggest wealth creation tool.

To be sure, investing in cryptocurrencies should be second to having a solid financial plan that includes emergency savings and solid retirement planning, according to Ross.

“Have a financial plan first and figure out where crypto fits into that,” said Ross. “If you don’t have a plan, what are you doing?”

Once that’s in place, however, it can make sense for investors to consider crypto as a key part of their long-term portfolio.

Due to the volatile nature of cryptocurrency, financial experts generally recommend it for

tech-savvy investors who are dedicated to learning about the asset and have a lot of time to ride the ups and downs.

Then, some of the same rules of investing in the stock market apply; namely, don't make emotional decisions or sell on a downswing.

This might be even more difficult, and take more discipline, for cryptocurrency investors. Ross suggests not checking the price often, and certainly not every day.

"If you pay attention to that, you'll have tremendous stomach acid and you'll gray very quickly," he said.

Financial experts generally recommend only putting into cryptocurrencies an amount of money that you can safely lose — in other words, it shouldn't be all of your nest egg.

Typically, having 5% of your portfolio in a high-risk asset such as bitcoin — or other coins — is a safe rule of thumb. For some investors, however, it may make sense to put even more into crypto. (CNBC, 2021)

Understanding Cryptocurrencies

Cryptocurrencies are systems that allow for secure payments online which are denominated in terms of virtual "tokens," which are represented by ledger entries internal to the system. "Crypto" refers to the various encryption algorithms and cryptographic techniques that safeguard these entries, such as elliptical curve encryption, public-private key pairs, and hashing functions.

Types of Cryptocurrency

The first blockchain-based cryptocurrency was Bitcoin, which still remains the most popular and most valuable. Today, there are thousands of alternate cryptocurrencies with various functions and specifications. Some of these are clones or forks of Bitcoin, while others are new currencies that were built from scratch.

Bitcoin was launched in 2009 by an individual or group known by the pseudonym "Satoshi Nakamoto."1 As of November 2021, there were over 18.8 million bitcoins in circulation with a total market cap of around $1.2 trillion, with the

figure updating frequently. Only 21 million bitcoins will ever exist, preventing both inflation and manipulation.2

Some of the competing cryptocurrencies spawned by Bitcoin's success, known as "altcoins," include Solana, Litecoin, Ethereum, Cardano, and EOS. By November 2021, the aggregate value of all the cryptocurrencies in existence is over $2.4 trillion—Bitcoin currently represents approximately 42% of the total value.3

Although cryptocurrency bills itself as a form of money, the Internal Review Service (IRS) considers it a financial asset or property. And, as with most other investments, if you reap capital gains in

selling or trading it, the government wants a piece of the profits. On May 20, 2021, the U.S. Department of the Treasury announced a proposal that would require taxpayers to report any cryptocurrency transaction of $10,000 to the IRS.4 How exactly proceeds would be taxed—as capital gains or ordinary income—depends on how long the taxpayer held the cryptocurrency.

Advantages and Disadvantages of Cryptocurrency

Advantages

Cryptocurrencies hold the promise of making it easier to transfer funds directly between two parties, without the need for a

trusted third party like a bank or credit card company. These transfers are instead secured by the use of public keys and private keys and different forms of incentive systems, like Proof of Work or Proof of Stake.

In modern cryptocurrency systems, a user's "wallet," or account address, has a public key, while the private key is known only to the owner and is used to sign transactions. Fund transfers are completed with minimal processing fees, allowing users to avoid the steep fees charged by banks and financial institutions for wire transfers.

Disadvantages

The semi-anonymous nature of cryptocurrency transactions makes them well-suited for a host of illegal activities, such as money laundering and tax evasion. However, cryptocurrency advocates often highly value their anonymity, citing benefits of privacy like protection for whistleblowers or activists living under repressive governments. Some cryptocurrencies are more private than others.

Bitcoin, for instance, is a relatively poor choice for conducting illegal business online, since the forensic analysis of the Bitcoin blockchain has helped authorities arrest and prosecute criminals.7 More

privacy-oriented coins do exist, however, such as Dash, Monero, or ZCash, which are far more difficult to trace.

Special Considerations

Central to the appeal and functionality of Bitcoin and other cryptocurrencies is blockchain technology, which is used to keep an online ledger of all the transactions that have ever been conducted, thus providing a data structure for this ledger that is quite secure and is shared and agreed upon by the entire network of an individual node, or computer maintaining a copy of the ledger. Every new block generated must be verified by each node

before being confirmed, making it almost impossible to forge transaction histories.8

Many experts see blockchain technology as having serious potential for uses like online voting and crowdfunding, and major financial institutions such as JPMorgan Chase (JPM) see the potential to lower transaction costs by streamlining payment processing.9 However, because cryptocurrencies are virtual and are not stored on a central database, a digital cryptocurrency balance can be wiped out by the loss or destruction of a hard drive if a backup copy of the private key does not exist. At the same time, there is no central authority, government, or corporation that

has access to your funds or your personal information.

$858.9 billion

Total market cap of Bitcoin, as of Aug. 2021.

Criticism of Cryptocurrency

Since market prices for cryptocurrencies are based on supply and demand, the rate at which a cryptocurrency can be exchanged for another currency can fluctuate widely, since the design of many cryptocurrencies ensures a high degree of scarcity.

Bitcoin has experienced some rapid surges and collapses in value, climbing as high as $17,738 per Bitcoin in Dec. 2017 before dropping to $7,575 in the following months.2 Cryptocurrencies are thus considered by some economists to be a short-lived fad or speculative bubble.

There is concern that cryptocurrencies like Bitcoin are not rooted in any material goods. Some research, however, has identified that the cost of producing a Bitcoin, which requires an increasingly large amount of energy, is directly related to its market price.

Cryptocurrency blockchains can be highly secure, but other aspects of a

cryptocurrency ecosystem, including exchanges and wallets, are not immune to the threat of hacking. In Bitcoin's 10-year history, several online exchanges have been the subject of hacking and theft, sometimes with millions of dollars worth of "coins" stolen.10

Nonetheless, many observers see potential advantages in cryptocurrencies, like the possibility of preserving value against inflation and facilitating exchange while being easier to transport and divide than precious metals and existing outside the influence of central banks and governments.

What Is Cryptocurrency in Simple Words?

Cryptocurrencies are systems that allow for secure payments online which are denominated in terms of virtual "tokens."

How Do You Get Cryptocurrency?

Any investor can purchase cryptocurrency through crypto exchanges like Coinbase, Cash app, and more.

What Is the Point of Cryptocurrency?

Many experts see blockchain technology as having serious potential for uses like online voting and crowdfunding, and major financial institutions such as JPMorgan Chase (JPM) see the potential to lower transaction costs by streamlining payment processing.

How Does Cryptocurrency Make Money?

Cryptocurrencies allow for secure payments online which are denominated in terms of virtual "tokens," which are represented by ledger entries internal to the system. Investors can make money with

cryptocurrency by mining Bitcoin, or simply selling their Bitcoin at a profit.

What Are the Most Popular Cryptocurrencies?

Bitcoin is by far the most popular cryptocurrency, followed by other cryptocurrencies such as Ethereum, Binance Coin, Solana, and Cardano.

CHAPTER SUMMARY

- Cryptocurrencies are systems that allow for secure payments online which are denominated in terms of virtual "tokens," which are represented by ledger entries internal to the system.

- There are several benefits of bitcoin over the fiat currency that most people are not aware of:

    - Lowstorage and transfer cost
    - Worldwide Global Access
    - Zero government interference
    - Impossibility to falsify

- The types of cryptocurrencies in existence are generalized into two categories:

- Bitcoin

- Altcoins (alternative coins, all coins that are not bitcoin)

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CHAPTER 4

BITCOIN

There are hundreds of online publications that describe what Bitcoin is in great length, but most still miss the mark. The best source for learning is to read the document released by Satoshi Nakamoto.

On October 31st, 2008, he released the whitepaper titled “Bitcoin: A Peer-to-Peer Electronic Cash System”. Its purpose is to explain the decentralized electronic payment system based on economics.

The word “Bitcoin” is only used twice in the original whitepaper (in the title and a link to a web domain) and goes on to describe a system for electronic transactions without

relying on trust. Governing the system are fixed protocols that utilize an immutable blockchain.

The medium of exchange for the system is a digital coin. In essence, Bitcoin is a triadic term that comprises fixed protocols, a digital coin, and also a decentralized blockchain forming an Electronic Cash System that works as a Peer-to-Peer Exchange.

To put it simply, Bitcoin's open-sourced code is reviewable and usable by anyone.

Why is Bitcoin revolutionary?

While online anarchists will have readers believe that Bitcoin will overthrow fiat currency and more reasonable people believe Bitcoin is a censorship-resistant, anonymous digital currency that is free from seizure, both are incorrect.

Bitcoin is not anonymous; it is private and has an open, immutable ledger. It allows privacy as only the address is public, but this means that activity on the address is examineable to discourage illegal activity. As Satoshi said:

“Bitcoin needs to work within the law to be valid.”

Bitcoin’s real genius is more in its economical design than in any technical innovation. Decentralization happens through the fixed protocol. Bitcoin creates a cash system where participants do not have to rely on an intermediary (such as a bank or payment processor) to facilitate transactions.

The protocols were also designed to prevent the “double-spending” of a coin. Each coin unit is unique and cannot be replicated or destroyed. The system runs on top of a distributed immutable network,

maintained by thousands of incentivized miners across the globe.

Bitcoin to the mainstream audience

Colloquially speaking, a Bitcoin refers to a unit of the Bitcoin digital currency, also known as a cryptocurrency. Some also incorrectly use the term Bitcoin synonymously when referring to blockchain technology in general.

Unlike traditional fiat currency, there is no local government or central bank controlling Bitcoin. To control inflation, the supply of Bitcoin that is gradually minted is capped, meaning that only 21 million coins will ever exist.

The mainstream audience has yet to adopt nor understand the full capabilities of Bitcoin.

Bitcoin is so much more than just a digital currency to be used for global payments. It is also an immutable, global public data ledger that enterprises can use to power blockchain applications that transform their businesses in new and exciting ways.

Bitcoin as a Viable Medium of Exchange

The underlying blockchain technology is designed to preserve the integrity of data and transactions. The blockchain permanently records confirmed transactions through a process known as mining. Every transaction is digitally signed and authen-

ticated through cryptographic techniques that ensure the funds cannot be spent more than once.

Double spending is also prevented through the economic interests of the miner. Miners will not include double-spent transactions primarily because there's a risk that other miners will reject their block; thus, they lose out on potential revenue. Double-spending is a crime, and people will not leave an immutable evidence trail of their attempted theft.

Bitcoin Mining is also the means through which new coins are generated. Mining relies on cryptographic hash functions and the Proof of Work (PoW) consensus

algorithm. Altering the Bitcoin blockchain through mining requires the entire structure to be unraveled record-by-record, as each block contains the hash of the previous block. To do so would require the perpetrator to expend a significant amount of capital and resources.

Data distribution occurs through many network miner nodes across the world. Each miner node maintains a copy of the blockchain ledger. If data is altered on one node, the other network participants would see it as corrupted since it would not match the additional copies.

Also, a timestamp server takes a hash of a block of transactions and publicly broadcasts the hash. The timestamp confirms the existence of the data. Each timestamp includes the previous timestamp in its hash, so each additional timestamp reinforces the ones before it.

In general, a distributed system is more resistant to failures and cyber-attacks, because it does not rely on a single, particular data source while traditional centralized systems do. The blockchain acts as a distributed ledger that records all transactions.

It is exceptionally resistant because it is distributed, making modification and fraud

difficult. The database records are immutable and can only be tampered with through an absurd amount of computing power.

How do I use Bitcoin to transact?

Transactions occur with no middlemen, so anyone with access to the Internet can transfer coins to someone anywhere in the world. To receive or send Bitcoins, users must first have a Bitcoin wallet.

To describe how a transaction works, consider the following scenario.

Jerry would provide Sam with his Bitcoin address, similar in concept to an account number. Sam creates a transaction with his

wallet to Jerry's address then signs the transaction with a digital signature. Once Sam hits send, his transaction is broadcasted to the nodes maintaining the network.

Miners gather pending transactions from a mempool to group inside of a new "block." Miners verify that Sam has the bitcoins to spend and that his signature is valid. Once the miner finds a solution to add the block, it is confirmed and appended to previously verified blocks.

New blocks of transactions are added to the ledger by consent of the majority of miners based on a set of rules which were defined in the original Bitcoin White Paper.

A new block is added to the blockchain every 10 minutes on average. The miner has now officially updated the blockchain's records so Jerry will see Sam's transfer in his wallet once Sam sends them and be able to spend them immediately without requiring confirmation.

Why use Bitcoin?

Bitcoin transactions are immutable once added to the blockchain, so once a transaction has been verified and recorded, it cannot be reversed. As anyone with an internet connection can use Bitcoin, it is ideal for those who want fast settlements and low fees.

People can safely send coins over a secured, distributed network directly to anyone else (peer to peer), without the need of traditional financial intermediaries. The complete Bitcoin transaction history is readily available for anyone to view.

How Bitcoin Increases in value

There are only 21 million bitcoins available and will ever be. This makes it limited in supply.

As bitcoin nears its maximum limit, demand for it increases. The increased demand and limited supply push the price per bitcoin upward.

CHAPTER SUMMARY

- Currencies have value because they can be used as a store of value and a unit of exchange.

- Successful currencies have six key attributes—scarcity, divisibility, utility, transportability, durability, and counterfeitability.

- The cryptocurrency bitcoin has value because it holds up very well when it comes to these six characteristics, although its biggest issue is its status as a unit of exchange as most businesses have yet to accept it as payment.

- Bitcoin's utility and transferability are challenged by difficulties surrounding the cryptocurrency storage and exchange spaces.

- However, if bitcoin gains scale and captures 15% of the global currency market (assuming all 21 million bitcoins in circulation) the total price per bitcoin would be roughly $514,000.

CHAPTER 5

BITCOIN WALLETS

Traditionally, a wallet is a small folding case for carrying paper money, credit cards, and other flat objects. And while many believe that a cryptocurrency wallet has the exact same characteristics as a traditional wallet, in reality, it functions differently.

Bitcoin lives as a record of transactions on the blockchain. Bitcoin never leaves the blockchain, so, in essence, a cryptocurrency wallet is somewhat of a misnomer as it does not store the digital currency.

Instead, your Bitcoin wallet is a tool that interacts with the BitcoinSV blockchain to send, receive, and manage the Bitcoin assigned to addresses. When a person sends Bitcoin, they are transferring possession of the coins from one address to another.

HOW CRYPTO WALLET WORKS

The crypto wallet stores private and public keys that interact with the BitcoinSV network. An alphanumeric identifier is generated based on the public and private keys. This identifier is commonly known as the “address” because it refers to a specific location on the blockchain. This address is

what parties give to one another in order to transact using Bitcoin

The private key stored must have ownership of the public address. To complete a Bitcoin transaction, the public and private keys must match. The transaction is signed by the sender and recorded on the Bitcoin (SV) blockchain. Once that happens, the balance of the receiver will increase, and the sender's decreases accordingly. The private keys must never be disclosed, or else the party risks having their Bitcoin stolen.

TYPES OF BITCOIN WALLETS

There are different kinds of storage mechanisms for Bitcoin, and each one has a use that it is best suited:

Desktop Wallets

Desktop wallets are installed on a desktop or laptop computer and provide the user with complete control over the wallet. Some desktop wallets also include additional functionality, such as node software or exchange integration.

However, desktop wallets are considered relatively insecure, due to the danger that the computer could be compromised. Some well-known desktop wallets are

Bitcoin Core, Armory, Hive OS X, and Electrum.1

Mobile Wallets

Mobile wallets perform the same functions as a desktop wallet, but on a smartphone or other mobile device. Many mobile wallets can facilitate quick payments in physical stores through near field communication (NFC) or by scanning a QR code.

Mobile wallets tend to be compatible with either iOS or Android. Bitcoin Wallet, Hive Android, and Mycelium Bitcoin Wallet are examples of mobile wallets. There have been many cases of malware disguised as Bitcoin wallets, so it is advisable to

research carefully before deciding which one to use.

Web Wallets

A web wallet is an online service that can send and store cryptocurrency on your behalf. The main advantage of web wallets is that they can be accessed anywhere, from any device, as easily as checking your email.

However, security is a major concern. In addition to the risks of malware and phishing to steal users' passwords, there is also significant counterparty risk. Many Bitcoin users have logged in to a third-party

service, only to find out that their Bitcoins have vanished.

Some of the most popular services are Coinbase, Blockchain, and Gemini.

A Warning: Private Keys are used to control Bitcoin addresses. Anyone who steals your private key can steal your coins.

Hardware Wallets

Hardware wallets are by far the most secure type of Bitcoin wallet, as they store private keys on a physical device that cannot access the Internet. These devices resemble a USB drive. When the user wishes to make a Bitcoin transaction on their computer, they plug in the hardware

wallet, which can sign transactions without compromising the user's private keys.

Hardware wallets are practically immune to virus attacks, and successful thefts have been rare. These devices often cost between $100 to $200. Ledger and Trezor are both well-known hardware wallet manufacturers.

Special Considerations for Wallet Security

Wallet safety is essential, as cryptocurrencies are high-value targets for hackers. Some safeguards include encrypting the wallet with a strong password, using two-factor authentication

for exchanges, and storing large amounts in an offline device.

Most modern wallets are generated from a twelve-word mnemonic seed, which can be used to restore the wallet if the device is lost or damaged. These words should be carefully stored in a safe place, since anyone who finds them will be able to steal your cryptocurrency.

For users looking for more security, offline hardware wallets are an alternative to their online software-based counterparts. Hardware wallets, also known as cold wallets, are the physical electronic devices that use a random number generator (RNG)

to generate public and private keys. The keys are stored inside the device.

Offline storage means a virus can't infect a hardware wallet, nor can hackers access it through an internet connection. Similar to a vault, hardware wallets are at an advantage if users are holding a large amount of the cryptocurrency. The disadvantage is that users will need to connect the hardware wallet to a computer to access their wallet, thus making them relatively less accessible.

The most secure yet least popular way to store cryptocurrency is a "paper wallet." As the name suggests, paper wallets are printed out on a piece of paper.

A software program generates a set of public and private keys. The keys are then printed on a piece of paper along with a QR code and kept offline. If the owner loses the piece of paper, they also lose access to their funds.

Lastly, choosing the right bitcoin wallet ultimately comes down to your needs, such as how many Bitcoins you have, how frequently do you plan on using it for cryptocurrency exchanges, the amount of privacy and security you need, etc.

Moreover, users can also choose to combine different wallet options to fit their needs. Whichever method requires

thorough research and consideration before moving funds into the wallet.

CHAPTER SUMMARY

· Bitcoin wallet is a tool that interacts with the BitcoinSV blockchain to send, receive, and manage the Bitcoin assigned to addresses.

· There are different kinds of storage mechanisms for Bitcoin, and each one has a use that it is best suited:

- Desktop Wallets
- Mobile Wallets
- Web Wallets
- Hardware Wallets

· For users looking for the most security, offline hardware wallets are a

great alternative to their online software-based counterparts. Hardware wallets, also known as cold wallets, are the physical electronic devices that use a random number generator (RNG) to generate public and private keys. The keys are stored inside the device.

· Choosing the right bitcoin wallet ultimately comes down to your needs, such as how many Bitcoins you have, how frequently do you plan on using it for cryptocurrency exchanges, the amount of privacy and security you need, etc.

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CHAPTER 6

BITCOIN MINING

This is the process through which new Bitcoins are spawned and put into circulation. It is also important in the maintenance and addition to the blockchain ledger. The process requires immense computing power.

Bitcoin mining requires high labour and capital input while only being sporadically rewarding. However, the thought of minting your own money yourself might just be enough satisfaction for some people.

Evolution of Mining

Between 1 in 16 trillion odds, scaling difficulty levels, and the massive network of users verifying transactions, one block of transactions is verified roughly every 10 minutes. But it's important to remember that 10 minutes is a goal, not a rule.

The Bitcoin network is currently processing just under four transactions per second as of August 2020, with transactions logged in the blockchain every 10 minutes. By comparison, Visa can process somewhere around 65,000 transactions per second. As the network of Bitcoin users continues to grow, however, the number of transactions made in 10 minutes will eventually exceed

the number of transactions that can be processed in 10 minutes.

At that point, waiting times for transactions will begin and continue to get longer, unless a change is made to the Bitcoin protocol.

This issue at the heart of the Bitcoin protocol is known as scaling. Though bitcoin miners generally agree that something must be done to address scaling, there is less consensus about how to do it. There have been two major solutions proposed to address the scaling problem.

Developers have suggested either creating a secondary "off-chain" layer of Bitcoin that would allow for faster transactions that can

be verified by the blockchain later, or increasing the number of transactions that each block can store.

With less data to verify per block, the first solution would make transactions faster and cheaper for miners. The second would deal with scaling by allowing for more information to be processed every 10 minutes by increasing block size.

In July 2017, bitcoin miners and mining companies representing roughly 80% to 90% of the network's computing power voted to incorporate a program that would decrease the amount of data needed to verify each block.

The program that miners voted to add to the Bitcoin protocol is called a Segregated Witness, or SegWit. This term is an amalgamation of segregated, meaning separate, and witness, which refers to signatures on a Bitcoin transaction. Segregated Witness, then, means to separate transaction signatures from a block—and attach them as an extended block.

Though adding a single program to the Bitcoin protocol may not seem like much in the way of a solution, signature data has been estimated to account for up to 65% of the data processed in each block of transactions.

Less than a month later, in August 2017, a group of miners and developers initiated a hard fork, leaving the Bitcoin network to create a new currency using the same codebase as Bitcoin. Although this group agreed with the need for a solution to scaling, they worried that adopting SegWit technology would not fully address the scaling problem.

Instead, they went with the second solution of increasing the number of transactions that each block can store. The resulting currency, called Bitcoin Cash, increased the block size to 8 MB in order to accelerate the verification process to allow a performance of around 2 million transactions per day. On Aug. 16, 2020, Bitcoin Cash was valued at

about $302 to Bitcoin's roughly $11,800.210

When Bitcoin first launched around 2009, individuals who had interest in mining could comfortably do it from the comfort of their homes using their regular computers. However, with increased popularity came more mining difficulty.

Increased difficulty levels only meant computers with greater processing power were then required, driving miners to start using computers that were originally meant for gaming. The cycle was then to repeat itself as gaming computers started failing to handle the computing power now required.

It was at this point that mining began to leave the hands of individuals as the computers and chips created specifically for mining Bitcoins were both really expensive and consumed an outrageous amount of electricity. These challenges brought us to the era of mining pools.

Mining Pools

This is about the only way through which Bitcoin mining can still be profitable. It is the process whereby a group of miners pool their resources together in order to mine Bitcoin collectively but then splitting the rewards based on each user's pooled computing power when the pool

successfully solves a block. BTC.com and Poolin are just a few of the most popular mining pools in the world right now.

Apart from saving costs through the use of mining pools, the odds of getting mining rewards are greatly increased when thousands of mining rigs are pooled together.

Mining Pool Methods

Not all cryptocurrency mining pools function in the same way. There are, however, a number of common protocols that govern many of the most popular mining pools.

Proportional mining pools are among the most common. In this type of pool, miners contributing to the pool's processing power receive shares up until the point at which the pool succeeds in finding a block. After that, miners receive rewards proportional to the number of shares they hold.

Pay-per-share pools operate somewhat similarly in that each miner receives shares for their contribution. However, these pools provide instant payouts regardless of when the block is found. A miner contributing to this type of pool can exchange shares for a proportional payout at any time.

Peer-to-peer mining pools, meanwhile, aim to prevent the pool structure from

becoming centralized. As such, they integrate a separate blockchain related to the pool itself and designed to prevent the operators of the pool from cheating as well as the pool itself from failing due to a single central issue.

Current Mining Pools

1. F2pool

F2Pool is based in China. It mines about 13% of all blocks.

2. Antpool

Antpool is a mining pool based in China and owned by BitMain. Antpool mines about 17% of all blocks.

3. ViaBTC

ViaBTC is a somewhat new mining pool that has been around for about one year. It's targeted towards Chinese miners and mines about 12% of all blocks.

4. Poolin

Poolin is a public pool which mines about 10% of all blocks. They are based in China, but have a website fully available in English.

5. Binance Pool

Binance Pool is a fast-growing pool owned and operated by Malta-based exchange Binance.

Binance is already one of the largest crypto exchanges on Earth and they are moving aggressively to expand their reach in mining as well.

Binance mines about 10% of all blocks

6. BTC.com

BTC.com is a public mining pool that can be joined and mines about 9% of all blocks. We strongly recommend joining Slush Pool or Poolin instead.

7. Huobi.pool

Huobi.pool is a Chinese based mining pool accounting for 2% of all mining.

8. Foundry USA

Foundry USA is (you guessed it) a US based pool owned by German blockchain company Foundry Digital. They account for 9% of all hashing power.

9. Slush

Slush Pool was the first mining pool and currently mines about 5% of all blocks.

Slush is probably one of the best and most popular mining pools despite not being one of the largest.

10. SBI Crypto

This is a Japanese pool that currently mines about 2% of the blocks.

The Process of Mining Bitcoins

Miners get paid for verifying the authenticity of Bitcoin transactions. This was conceived by Satoshi Nakamoto in order to prevent double spending (a process whereby a user illicitly tries sending the same Bitcoin in multiple transactions).

Probably not an ideal analogue, but this could be compared to someone taking the pain to look at two $100 bills in order to verify the serial numbers. If both have the

same serial number, then one has to be fake.

Miners need to verify 1 MB worth of Bitcoin transactions (a block) in order to be eligible for their reward. However, many miners are of the opinion that the block size should be increased in order to accommodate more data, effectively reducing transaction processing time.

The eligibility to receive Bitcoin after verifying 1 MB worth of data does not mean one will earn, as there are two conditions that need to be satisfied in order to get paid. One is a matter of effort, the other, sheer luck. These include;

- Verification of 1 MB worth of Bitcoin transactions, as already stated above.
- One must be the first to arrive at a technically correct answer to a numeric problem. The process is termed "Proof of Work".

The numeric problem being spoken about is not a mathematical problem, sensu stricto. What they are basically doing is trying to be the first to produce a 64-digit hexadecimal number (hash) which is less than or equal to the target hash. This is basically guesswork, however, a high hashrate mining equipment stands you in better stead.

Cloud Mining

Cloud mining involves purchasing mining capacity of hardware from data centres. This kind of mining is done remotely without the user having to manage hardware and worry about other direct costs. Some of the companies that offer these services include HashFlare and Genesis Mining.

Hosted mining is the most popular form of cloud mining. In this model, the customer purchases or leases mining hardware located in a miner's facility. The miner is responsible for maintaining the equipment and ensuring that it functions as performed.

Through this model, customers have direct control over their cryptocurrency. The economies of scale of a mining farm ensure that expensive costs associated with mining, such as electricity and storage, become manageable. But there is a considerable upfront cost associated with this type of mining.

Leased hash power is another model that is used in cloud mining. In this model, hash power, or computing power associated with a cryptocurrency, is leased from a mining farm.

Customers get a share of the farm's overall profits from mining cryptocurrencies. According to reports, leased hash power is

a popular form of mining for altcoins (i.e., cryptocurrencies other than bitcoin). The process requires a person to open an account with a cloud mining company via its website and select certain things like the contract period and hashing power.

While there are advantages to cloud mining, such as less investment in hardware and recurring costs, the process also has several disadvantages. For example, industry scams have proliferated rapidly with the popularity of cryptocurrencies.

Then there is the prospect of diminishing profits. Altcoins especially are vulnerable to demand, and a reduction in their hash power could lead to fewer profits for

miners. Cloud mining models also promote the centralization of cryptocurrencies, otherwise a decentralized ecosystem.

Checklist for an intending miner

There's definitely been a lot to suggest that mining Bitcoins might not be the way to go if you're mainly about the money. However, this has been included just in case you're one of those who derive satisfaction from the thought of *printing* their own money.

These are definitely steps you should take before setting out;

- Calculate profitability: You should calculate the cost of mining hardware

along with electricity bills while factoring in a feasible amount of Bitcoin that can be made along with the value at that point in time. It might then be a good idea to move on to the next step if your calculations are positive on paper.

- Get mining hardware and software: You can expect to spend thousands of dollars to get good mining hardware. You then have to decide on the most suitable application to help you interact with the blockchain and manage the mining process.

- Get a Bitcoin wallet: This is about the most straightforward part as many wallets are easily accessible for free. However, it might be advisable to get a cold wallet if you will be storing your Bitcoin for a long time.

- Getting into a mining pool: Join one that best suits your needs and offers the best chance of profitability (that's why you're there anyway)

- Start the engines: You can start mining as soon as you've checked all the other boxes. This process might only require you to check equipment

from time to time ensuring that everything is running smoothly.

CHAPTER SUMMARY

· Mining_is the process through which new Bitcoins are spawned and put into circulation.

· Bitcoin could once be mined simply with a pc, but as more and more people joined, mining became harder, requiring more specialized hardware and insane processing power dedicated specifically to the task of bitcoin mining.

· Because of the herculean cost of acquiring mining equipment, people began to pool money together to get such equipment, using it, then sharing the profit among everyone as according

to their investment. Thus mining pools were formed.

· Cloud mining involves purchasing mining capacity of hardware from data centres. This kind of mining is done remotely without the user having to manage hardware and worry about other direct costs.

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CHAPTER 7

ALTCOINS

Altcoins can simply be defined as any cryptocurrency other than Bitcoin.

Altcoins all came into existence after Bitcoin and they often portray themselves as better alternatives to Bitcoin, pointing out shortcomings that they could obliterate. Coinmarketcap puts the number of altcoins in existence at just over 9,400. However, the number could easily be double that, as a lot of projects haven't made it to the website.

With the numbers being thrown around, we can safely conclude that many of the coins

would never materialise into anything useful or provide returns for initial investors. However, one should also note that there are many alts out there that have delivered many times over on the initial promise.

How are altcoins different from bitcoin?

To understand altcoins, it helps to first have a firm grasp on bitcoin (read up on bitcoin for beginners). It's also helpful to know the basics of blockchain technology, on which all cryptocurrencies operate.

Altcoins have the same premise as bitcoin: to use the blockchain as an incorruptible, distributed public ledger, which allows and records a transaction only if there's consensus that the transaction is legitimate.

But many altcoins have taken this premise and either used it to achieve different goals or sought to improve a perceived flaw in bitcoin.

Litecoin, for example, started out as a clone of the Bitcoin blockchain's source code, but included changes to speed up transaction times and improve storage efficiency. Litecoin’s purpose is the same as bitcoin’s — to be a peer-to-peer internet currency — but its founder sought to improve the way bitcoin went about it.

Ethereum, on the other hand, saw an opportunity in bitcoin’s blockchain technology beyond just recording financial transactions; the Ethereum blockchain also

records agreements in the form of “smart contracts.” Ethereum advocates say these smart contracts — computer programs that automatically execute an agreement if certain conditions are met — could upend industries that currently rely on costly middlemen, like insurance, banking and copyright management.

Other altcoins have emerged that promise to be even faster, more decentralized, more scalable, more secure or a combination of all these core cryptocurrency tenets. The result is a dizzying ecosystem of altcoins that’s hard to categorize, but can be roughly broken down into these four buckets:

- Native cryptocurrencies.
- Tokens.
- Stablecoins.
- Forks.

Major Pros and Cons of Altcoins

Pros

- Many of them are truly better versions of Bitcoin in many aspects. Several Altcoins have improved on the speed, scalability and transaction costs of the Bitcoin network.
- Some Altcoins are beginning to gain mainstream adoption in several industries, solving everyday problems.

- Stablecoins like USDT are finally delivering on Bitcoin's initial promise to serve as a medium for daily transactions.
- They have the potential to yield a very good return on investment.

Cons

- Altcoins serve as black holes for funds of many investors.
- Many altcoins have similar use cases, making it difficult for investors to pick which ones to invest in.

SOME ALTCOINS

Learningspot.com presents some of the most popular altcoins in circulation, and their usefulness.

Namecoin: decentralized domain name management

Namecoin was the first Altcoin born in 2011, around two years after Bitcoin. Its purpose was to replace the domain name system in a decentralized way. A specific plugin for Firefox or Chrome is available in order to access to any website ending with ".bit". It will automatically take you to the right location indicated by the registry stored on Namecoin. To register a domain

in Namecoin and keep it, it is necessary to send a transaction to the Namecoin system.

Namecoin has many interesting properties:

- It gives the possibility to register a domain name which is not already in use for a small fee, corresponding to 0.01 Namecoin (around 0.05$). So, the cost is far less than the cost of registering a domain name following the standard procedure.
- It is not necessary to pay a renewal fee to keep the domain. While it is enough to publish every six months a transaction that pings the domain name under your control.

- Namecoin manages subdomains in the same way as current domain system. For example, if you register mywebsite.bit, you have access to all its subdomains.
- It is also possible to transfer domains to other people selling them in exchange of some Namecoins.
- It was the first Altcoin to feature merge-mining which is a very interesting mining approach that we will see later in further details.

Litecoin: first memory-hard mining puzzle

Also Litecoin was born in 2011 sometime after Namecoin. For several years Litecoin was the second main cryptocurrency after Bitcoin. The main technical difference from Bitcoin is its mining-puzzle. Litecoin uses a memory hard mining puzzle, while the Bitcoin a computation hard one. In 2011, Bitcoin mining already required GPUs and Litecoin purpose was to be GPU resistant. However, despite the purposes, it was

possible to improve Litecoin mining first using GPUs and then with a specific Litecoin ASIC.

Litecoin is the second most forked cryptocurrency and, besides the mining puzzle, it differs from Bitcoin just for some parameters change. For example, the time between block creation is 4 times smaller than Bitcoin (2.5 minutes instead of 10).

PeerCoin: first proof-of-stake mining puzzle

PeerCoin was born towards the end of 2012 and uses a very different mining puzzle: proof-of-stake. As we said in a previous lecture this method doesn't involve any computational work. Instead, it involves mining by making transactions using coins owned by the miner. Coins acquire more stake over time as long as the miner doesn't spend them. Actually, Peercoin mining is a little more complicated, since it is an hybrid mining protocol and supports also proof-of-work, but only for minting. In fact, the proof-of-work blocks aren't actually included in the calculation to determine what's the longest Peercoin blockchain and their only purpose is to create new coins. So, an attacker with a

high computation power doesn't have advantages in launching attacks against Peercoin network.

In addition, there's the concept of Peercoin administrators who own a trusted public key used to sign checkpoints every a certain number of blocks. This acts as a safeguard against attacks, but leads to the fact that Peercoin isn't fully decentralized. In addition, we can't prove that proof-of-stake is a very secure mining protocol since Peercoinrelies on these checkpoints.

DogeCoin: having fun with cryptocurrency

DogeCoin was born at the end of 2013. Besides a few technical changes from Bitcoin, the main difference between Dogecoin and other currencies is that it was born with the purpose of having fun with cryptocurrency. In fact, Dogecoin supported many marketing campaigns and public events, which let it become popular in a very short term after its launch. For example:

- it sponsored a NASCAR driver which ran with Dogecoin logo on his car
- the community raised over 30 thousand dollars to support the Jamaican bobsled team to let them travel and compete in 2014 Winter Olympic Games.

One interesting technical difference from other cryptocurrencies was the notion of random block rewards. Rather than having a fixed block reward, each block bonus is random. It depends on a pseudo-random function applied to the previous block hash. So, miners knew the reward before the block insertion. And, if the reward was really low, they could switch to other cryptocurrencies mining. So, this feature

was removes a few months after the launch. Now Dogecoin block reward is fixed and halved every two months.

Ethereum: the first smart contract cryptocurrency

Ethereum was born at the beginning of 2013 and allows the creation of smart contracts in a Turing-complete programming language. The innovative idea is to think that many contracts can correspond to a computer program. In fact, a contract is

something which is fulfilled and can be applied when a series of conditions are met.

The smart contract are computer programs installed on the peer-to-peer network. In order to run, they "pay" the computational power required through a token, called Ether, which therefore acts both as cryptocurrency and contract fuel. There are many examples of contracts already running on Ethereum network. For example, electoral systems, registration of domain names, financial markets, crowdfunding platforms, intellectual property, auctions and so on.

Monero: higher privacy level

As we have seen, Bitcoin provides only pseudonimity. So, it is not that suitable for monetary exchanges in which a high level of privacy. While Monero uses a ring signature algorithm. A signature is a combinations of many participants signatures. So, it is possible to link a transaction to a users group, but not to trace it back to the user who actually made it. In addition, Monero, unlike Bitcoin, is

fungible. So, every coin is completely identical to every other coin in circulation.

Cardano: first provably secure proof-of-stake algorithm

Cardano is a decentralized public blockchain that aims to protect user privacy, while also allowing for regulation. It is a 3rd generation cryptocurrency born in 2015. Its roadmap is still evolving and the major successes date back to the second half of 2017. At the beginning of 2018 it

entered in the top 5 Market Cap cryptocurrencies.

The main Cardano features are:

- high speed: low speed is a point of failure of most early born cryptocurrencies
- money ownership: the user owns his money unlike in bank accounts where the bank owns them
- pseudonimity and security
- extensibility: supports the side chain concept, allowing to create specific purpose cryptocurrencies for a particular aim in which participants hold tokes that are valuable on the main chain.

Examples of such applications are identity management, gaming and gambling, and verifiable computations.

The main differences with Bitcoin are:

- mining relies on the first provably secure proof of stake algorithm called "Ouroboros
- presence of layers. The Cardano cryptocurrency resides on Settlement layer where the users can make exchanges. It supports a Control layer extension serving as a trusted computation framework. The aim is to evaluate a special kind of proofs to ensure that a certain computation

was correct. In gaming and gambling, such systems serve for verifying honesty of random number generation and game outcomes.

Ripple

Ripple was born in 2012. It has many conceptual differences with Bitcoin, since it aims to help the authorities and not to substitute them.

Banks and financial services companies can incorporate Ripple protocol into their own systems. As the Ripple team says, the aim is to "do for payments what SMTP did for email, which is enable the systems of different financial institutions to communicate directly."

On Ripple network it is possible to make payments in XRP (Ripple internal currency) or in fiat currency. XRP transactions rely on Ripples internal distributed ledger. While for other currencies or assets, the ledger records only the owned amount. To exchange other assets, users have to specify a list of trusted users and to what amount. A payment between two users that trust each other can take place directly

according to the maximum threshold. While, a payment between users who don’t trust each other directly goes through a path created linking users who have a mutual trust relationship. This payments mechanism through a network of trusted associates is named 'rippling'.

CHAPTER SUMMARY

- Altcoins can simply be defined as any cryptocurrency other than Bitcoin.

Pros

- Many of them are truly better versions of Bitcoin in many aspects.

Several Altcoins have improved on the speed, scalability and transaction costs of the Bitcoin network.

- Some Altcoins are beginning to gain mainstream adoption in several industries, solving everyday problems.

· Stablecoins like USDT are finally delivering on Bitcoin's initial promise to serve as a medium for daily transactions.

· They have the potential to yield a very good return on investment.

Cons

· Altcoins serve as black holes for funds of many investors.

· Many altcoins have similar use cases, making it difficult for investors to pick which ones to invest in.

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CHAPTER 8

THE RISE OF STABLE COINS

A stablecoin is a digital currency pegged to a fiat currency, such as the U.S. dollar or the Euro, making it a practical and viable choice for activities that involve payments on a blockchain network for both large and small values. Think of it as a digital wallet that is secure, fast, and affordable, while having the usability of a fiat currency.

Understanding Stablecoins

BTC may be the most popular digital currency out there, but its value suffers

from dramatic price movements (as do other cryptocurrencies).

BTC and its counterparts are very volatile. In a moment, the price can move more than 10%. The rapid and unpredictable price changes make BTC and other digital coins unsuitable for everyday transactions.

Maintaining price stability is where stablecoins find their edge. As stablecoins continue to sweep the cryptocurrency industry and emerge as a payment alternative, more individuals and businesses will find reasons to adopt them. But before diving into its real-world applications, you should get to know the various types of stablecoins.

Stablecoins also pose illicit finance concerns and risks to financial integrity, including concerns related to compliance with rules governing anti-money laundering (AML) and countering the financing of terrorism (CFT) and proliferation.

To prevent misuse of stablecoins and other digital assets by illicit actors, Treasury will continue leading efforts at the Financial Action Task Force (FATF) to encourage countries to implement international AML/CFT standards and pursue additional resources to support supervision of domestic AML/CFT regulations.

Stablecoins are generally created, or "minted," in exchange for fiat currency that

an issuer receives from a user or third-party. To maintain a stable value relative to fiat currency, many stablecoins offer a promise or expectation that the coin can be redeemed at par upon request.

These stablecoins are often advertised as being supported or backed by a variety of "reserve assets." However, there are no standards regarding the composition of stablecoin reserve assets, and the information made publicly available regarding the issuer's reserve assets is not consistent across stablecoin arrangements as to either its content or the frequency of its release.

Based on information available, stablecoins differ in the riskiness of their reserve assets, with some stablecoin arrangements reportedly holding virtually all reserve assets in deposits at insured depository institutions or in U.S. Treasury bills, and others reportedly holding riskier reserve assets, including commercial paper, corporate and municipal bonds, and other digital assets.

Stablecoin redemption rights can also vary considerably, in terms of both who may present stablecoin to an issuer for redemption and whether there are any limits on the quantity of coins that may be redeemed.

Some issuers are permitted under the terms of the arrangement to postpone redemption payments for seven days, or even to suspend redemptions at any time, giving rise to considerable uncertainty about the timing of redemptions. As a further point of variation, stablecoins also differ in the nature of the claim provided to the user, with some providing a claim on the issuer and others providing no direct redemption rights to users.

Moreover, users' ability to redeem their stablecoin may be affected by other aspects of the stablecoin arrangement, including the ability to transfer the proceeds of any redemption into the banking system.

By comparison, a demand deposit held at an insured depository institution is a claim on the issuing bank that provides the depositor with the right to receive U.S. dollars upon request. The value of this claim is insured up to certain amounts and entitled to depositor preference in resolution. In addition, the issuing institution may access emergency liquidity, and is subject on an ongoing basis to supervision and regulation designed to limit the riskiness of the issuer's balance sheet and operations

Transfer and Storage Of Stablecoins

Stablecoin arrangements typically facilitate the transfer of coins between or among users of the stablecoin arrangement, by having issuers and other participants record the transfer either “on the books” of the wallet provider (for transactions between users of the same wallet provider) or on the distributed ledger (for transactions involving users of different wallets).

In this sense, they can facilitate the transfer of value as in payment systems. More specifically, the payment processes underlying both distributed ledger and traditional payment systems share similarities, in that they each rely on the

following conceptual steps: (1) initiation of payment, typically through a message to the payment network, (2) validation or verification of the integrity of the message and the conditions for settlement (e.g., sufficient funds), and (3) settlement of the transaction, in which value is transferred and the obligation iMany of the stablecoins currently in circulation are underpinned by “public blockchain” networks.

Potential benefits and drawbacks inherent with any distributed network technology are present in these types of stablecoin arrangements, such as transparency provided by a public ledger. In particular, the process for public blockchains to come to agreement over updates to the ledger

typically involves the node operators communicating and validating transactions and then agreeing to a new version of the ledger (often referred to as consensus).

Compared to a traditional centralized system, certain public blockchain networks are designed to require greater computational resources to achieve consensus, which in turn constrains the network's capacity for transaction throughput (i.e., maximum number of transactions capable of being processed per second) and may be more expensive and energy intensive than traditional payment systems.

In contrast to public blockchains, “permissioned blockchains” do not allow such open and direct access to the distributed ledger. Compared to public blockchains, permissioned blockchains may offer more certainty as to who is responsible for monitoring the network and complying with the rules of the network (e.g., processing only valid transactions) and thus faster and more predictable settlement.

Depending on design,however, they may also offer less transparency and security.s discharged.

TYPES OF STABLECOINS

Peg Stable Coins

Peg stablecoins or fiat-backed stablecoins can be very easily understood. A peg stablecoin is when we have one type of token or crypto and they mask a pegged asset that is backed behind it. So, if you have one US dollar crypto coin, we know that there is a dollar backing it in some way shape or form.

Tether made stablecoins really popular. They have been around since 2014 and is the first pegged stablecoin.

Tether Limited is the company that issued the tether tokens. This company has

millions of dollars in reserve in banks across the world that back a certain amount of tether coins that are on crypto exchanges.

Top fiat-backed stablecoins examples:

- Tether
- TrueUSD
- USD coin
- Gemini dollar

Collateralized Stablecoins

Collateralized stablecoins operate in the same way as fiat-backed stablecoins. The only difference is that they are backed with reserves of another cryptocurrency as opposed to the fiat currency.

Collateralized stablecoins have a set of collateral or a set of assets that are backing behind the newly created stablecoins. The main advantage of crypto-collateralized stablecoins is that the entire ecosystem can live on the blockchain.

DAI stablecoin and Maker are the two most prominent examples of a crypto-collateralized stablecoin.

DAI stablecoin mainly uses Ethereum tokens as collateral.

However, over time they intend to use a mixture of assets to back DAI stablecoin.

The second advantage of collateralized stablecoins is that they are fully

decentralized. This means they can benefit from the inherent virtues of the blockchain. They can also be liquidated very fast and at a reduced cost. The entire ecosystem is transparent because all transactions are stored publicly.

The biggest challenge of collateralized stablecoin is volatility. In essence, they are not that stable as the fiat-backed coins.

Algorithmic Stablecoins

The algorithmic stablecoins don't use any collateral or peg. The question is, how do they make sure one coin is equal to 1 US dollar?

The way algorithm stablecoins accomplish this is by adjusting the supply based on demand. As we all know from basic economics: supply and demand meet at an equilibrium point. If you want to change the price of something, you can alter the supply. Altering the supply will move the equilibrium point, thus ultimately changing the price.

These stablecoins don't rely on banks, are truly decentralized, and have no collateral required. There is also a complete separation from the fiat currency system.

Top algorithmic stablecoins examples: Basis, Carbon, Reserve.

https://tradingstrategyguides.com/what-are-stablecoins/

Real-world Applications of Stablecoins

Apart from having the potential to be used like any other currency for shopping and transferring funds, below are more practical uses of stablecoins.

- Faster and more affordable remittances

Currently, migrant workers utilize international financial services to send money to their families and loved ones. Usually, the process takes a while and comes with high fees. Stablecoins can be a

viable alternative for money remittances because transactions are instant and costs are low.

Migrant workers and their families can use a digital wallet to receive stablecoins without the risk of price volatility, a common problem with cryptocurrency transactions.

- Foreign aid

Recently, President-elect Juan Guaidó of Venezuela partnered with Circle (USDC), a fiat-collateralized stablecoin backed by the U.S. dollar. The U.S. government is reportedly planning to use the USDC stablecoin to provide foreign aid in Venezuela.

The U.S. Federal Reserve and Treasury Department plan to give funds to the Guaidó administration, which will utilize the funds to mint USDC. After which, the USDC will be released to a crypto exchange where it will be distributed to Venezuelan medical workers and locals through digital wallets. The recipients can withdraw the funds as their local currency at the free market rate.

- Protection from the dropping value of a local currency

Building off of the example above, since Circle's USDC is backed by U.S. dollars, it does not suffer from the Venezuelan Bolivar local currency's price crashes. If a country's local fiat currency is crashing in value, the

citizens can quickly exchange their currency for a fiat-backed or commodity-backed stablecoin to alleviate their financial suffering and prevent losing any more of their savings.

CHAPTER SUMMARY

· A stablecoin is a digital currency pegged to a fiat currency, such as the U.S. dollar or the Euro, making it a practical and viable choice for activities that involve payments on a blockchain network for both large and small values.

· Among the applications of stable coins are:

- Faster and more affordable remittances
- Foreign aid
- Protection from the dropping value of a local currency

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ABOUT THE AUTHOR

Ajayi Adeshina is the Chief Executive Officer of Digital Focus. A Digital company focused on Blockchain education and awareness.

He is a leading financial literacy advocate and enthusiast, highly competent Blockchain expert with over ten (10) years of experience in Leadership Management and four (4) years of accomplishment in Blockchain Technology space for social impact, Human development and financial capacity building.

Adeshina is an alumnus of the prestigious London Graduate School (LGS) where he bagged a certification in Management Specialist with distinction in Time Management. He was certified a blockchain

expert by the prestigious Blockchain Council after he graduated with a distinction.

He is happily married to his beautiful Wife Adedayo and the union is blessed with two boys Brian and Ethan.

From time, money has always inexplicably been part of our daily lives, from earning it via jobs and investments to spending it for products, services, and experiences. It is a necessity no matter the currency and has always been a symbol of barter and exchange.The rise of digital currencies is completely changing the way money is being transacted and used. This book explains how digital currency is bridging the gap between the rich and the unbanked poor and how to be a player in the sector.